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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/014,471	12/14/2001	Ching-Hsing Huang	3313-0443P-SP	1066

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[REDACTED] EXAMINER

SMITH, JULIE KNECHT

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

3682

DATE MAILED: 08/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/014,471

Applicant(s)

HUANG ET AL.

Examiner

Julie K Smith

Art Unit

3682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 06 June 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.
- 4) Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-7 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 14 December 2001 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
- Certified copies of the priority documents have been received.
 - Certified copies of the priority documents have been received in Application No. _____.
 - Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____ .
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . 6) Other: _____ .

DETAILED ACTION***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3-4 and 6-7 rejected under 35 U.S.C. 103(a) as being unpatentable over Cordova et al. (5,540,504) in view of Lee et al. (6,071,014).

Regarding claims 1 and 6-7, Cordova et al. discloses a hydrodynamic bearing (see fig. 3) comprising a sealed housing containing a lubricant, a cylinder-shaped bushing (7) placed in the housing having a plurality of dynamic pressure generating herringbone grooves (20) being penetrated for storing the lubricant, and a shaft (3) rotatably installed in the bushing, wherein the lubricant produces hydrodynamic pressure between the grooves and the shaft, when the shaft rotates relative to the bushing.

Although Cordova et al. does not disclose the bearing being a hybrid bearing, Lee et al. teaches a hybrid bearing. Therefore, it would have been obvious to one of ordinary skill in the art to use the hydrodynamic bearing of Cordova et al. in combination with a hydrostatic bearing, as taught by Lee et al. as hybrid bearings are old and well known in the art and are commonly used in motor spindle applications.

Regarding claims 3-4, Cordova et al. discloses a pre-pressure being applied to the sealed housing for making the lubricant pass through the grooves and be present between the bushing

and the shaft. The pre-pressure is created during the manufacturing process during the shrink-fitting process of the bushing.

3. Claims 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cordova et al. in view of Lee et al. as applied to claims 1, 3-4 and 6-7 above, and further in view of Mori et al. (6,023,114).

Regarding claim 2, the reference combination set forth above discloses a hybrid bearing as claimed, but is silent as to the housing comprising a porous material for storing lubricant. However, Mori et al. teaches a housing for a bearing having a porous material for storing lubricant.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the housing of Cordova et al. with the teachings of Mori et al. to have a porous housing so as to more evenly distribute the lubricant over the length of the bushing and shaft.

Regarding claim 5, Cordova et al. discloses a bearing with a sealed housing, but does not disclose the housing sealed with glue. However, Mori et al. teaches a housing containing a lubricant with a seal made from a synthetic resin.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the seal of Cordova et al. with the teachings of Mori et al. to be made from a glue as it is old and well known in the art to use glue as a sealant.

Response to Arguments

Art Unit: 3682

4. Applicant's arguments filed 6/6/03, with respect to the rejection(s) of claim(s) 1-7 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

5,634,724 to Zang et al. 6,097,121 to Oku

4,805,972 to Tanaka et al. 5,503,478 to Blaine

5,052,823 to Adolfsson et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julie K Smith whose telephone number is 703-305-3948. The examiner can normally be reached on Monday-Friday, 8-5:30, (Every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A Bucci can be reached on 703-308-3668. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

jks
jks
August 14, 2003


DAVID A. BUCCI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600